

U.S. Patent 4,292,606 to Trimmel

The Trimmel patent is directed to modulation current control of laser diodes. Referring to Figure 1, a laser diode LD is connected to a light wave guide LWL. A control current is supplied to terminal A of the diode LD. The control current is composed of a modulation current  $I_{mod}$ , a bias or pre-conduction current  $I_o$  and a pilot signal current  $I_s$ . These currents are illustrated in Figure 2 (column 2, lines 38-48).

Claim 14 Patentably Distinguishes Over the Prior Art

Claim 14 is directed to a method for driving a semiconductor laser which comprises:

supplying a first bias current for driving the semiconductor laser at least at a time of non-output of data, to drive the semiconductor laser in a spontaneous emission area;

supplying a second bias current to the semiconductor laser prior to data transmission by delaying a data signal; and

supplying a pulse current to the semiconductor laser a predetermined time after commencement of supplying the second bias current.

In Figure 2a and column 2, lines 41-48, Trimmel explains the currents  $I_{mod}$ ,  $I_o$  and  $I_s$ . It is submitted that the modulation current  $I_{mod}$  of Trimmel corresponds to the claimed pulse current of claim 14. On the other hand, the bias current  $I_o$  of Trimmel is a bias current given in reference to a threshold current  $I_T$  in order to avoid a delay in emission of the laser diode as described at column 1, lines 27-37 of Trimmel. However, Trimmel does not teach or suggest that the bias current  $I_o$  drives the semiconductor laser at least at a time of non-output of data, to drive the semiconductor laser in a spontaneous emission area, or that the bias current  $I_o$  rises more rapidly by a predetermined time than the rise of the burst data. Therefore, it is submitted that the bias current  $I_o$  of Trimmel is different from the first and second bias currents recited in claim 14.

In addition, at column 2, lines 45-48, Trimmel discloses that the peak amplitude of the pilot signal current  $I_s$  is selected to equal only one percent of the amplitude of the bias current  $I_o$ , and that the frequency of the pilot signal current  $I_s$  is selected to be 10kHz. In addition, as

explained at column 2, lines 54-58, the pilot signal current  $I_s$  causes distortions to occur in the output optical signal of the laser diode. Because the pilot signal current  $I_s$  does not operate in the manner specified for the claimed first and second bias currents of claim 14, it is submitted that the pilot signal current  $I_s$  is different from the required claimed first and second bias currents.

In summary, it is submitted that Trimmel does not teach or suggest:

supplying a first bias current for driving the semiconductor laser at least at a time of non-output of data, to drive the semiconductor laser in a spontaneous emission area;

supplying a second bias current to the semiconductor laser prior to data transmission by delaying a data signal;

Allowable Subject Matter

On pages 3 and 4 of the Office Action a Statement of Reasons for Allowance is provided. The Statement includes paraphrasing of certain portions of claims 1 and 13. In view of the fact that the paraphrasing is not consistent with the claim language and contains some errors in terminology, it is submitted that the claims themselves should be relied on to construe the features of the invention.

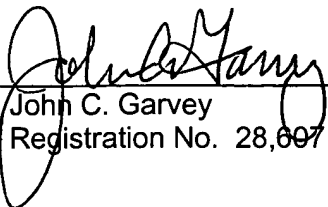
Summary

It is submitted that all claims in the application are now in condition for allowance. Reconsideration of the claims and an early notice of allowance are earnestly solicited.

Respectfully submitted,

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